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[New Hampshire Code of Administrative Rules](#)  
[Part Env-Wm 1403](#)



State of New Hampshire  
DEPARTMENT OF ENVIRONMENTAL SERVICES

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May 3, 2000

Ms. Carol Holahan, Director  
Office of Legislative Services  
c/o OLS, Division of Administrative Rules  
State House Annex, Room 219  
Concord, NH 03301

Re: Adoption of Final Rule, FP 2000-37

Dear Director Holahan:

Please be advised that I, as Commissioner of the Department of Environmental Services, have adopted the following rule:

FP 2000-37: Env-Wm 1403.05: Groundwater Management and Groundwater Release  
Detection Permits

The Joint Legislative Committee on Administrative Rules approved this rule on  
April 21, 2000.

Enclosed are a disk copy and two paper copies of the rule.

I, Robert W. Varney, Commissioner of the Department of Environmental Services, hereby  
certify that the enclosed are true copies of the rule I have adopted.

Very truly yours,

Robert W. Varney  
Commissioner

Enclosures

cc: Gretchen Rule, DES Enforcement Coordinator  
Susan Alexant, DES Hearings and Rules Attorney  
PIP Office  
Michael Walls, NHDOJ  
Philip J. O'Brien, Ph.D., Director  
Frederick J. McGarry, P.E., Chief Engineer, Site Remediation Programs

Amend Env-Wm 1403.05(b)(13), Table 1403-1, Ambient Groundwater Quality Standards, eff. 2/24/99 (doc. # 6945), by amending the "Chemical Name" and the "AGQS" for "Methyl tert-butyl ether" to read as follows:

Table 1403-1 AMBIENT GROUNDWATER QUALITY STANDARDS		
Chemical Name	CAS No.	AGQS ug/L (ppb)
Methyl tertiary-butyl ether (MtBE)	1634-04-4	13

# NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES

## Env-Wm 1403

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**Readopt with amendment and renumber Env-Ws 410, effective 2/11/93, (Document #55791), as Env-Wm 1403, to read as follows:**

PART Env-Wm 1403 GROUNDWATER MANAGEMENT AND GROUNDWATER RELEASE  
DETECTION PERMITS

Statutory Authority: RSA 147-F:18, RSA 485-C:4

[Env-Wm 1403.01 Purpose.](#) The purpose of these rules is to establish procedures and requirements for investigating, remediating and managing contamination for sites where discharges of regulated contaminants have occurred and to establish procedures for monitoring the groundwater for early detection of any impact associated with the activities listed in RSA 485-C.

[Env-Wm 1403.02 Definitions.](#)

(a) "Activity and use restrictions" means the controls or restrictions imposed on the activities and use of a site, as necessary to achieve or maintain a condition that is protective of human health and the environment, which is recorded in the registry of deeds for the county in which the site is located.

(b) "Ambient groundwater quality standards (AGQS)" means "ambient groundwater quality standards" as defined in RSA 485-C:2, I, namely "maximum concentration levels for regulated contaminants in groundwater which result from human operations or activities, as delineated in RSA 485-C:6."

(c) "Chemical Abstract Service Number (CAS No)." means a number assigned to molecules and mixtures by the American Chemical Society that provides a unique identification for chemicals as well as a means for cross-checking chemical names.

(d) "Certificate of completion" means a certificate issued by the department which certifies that:

- (1) The activities specified in an approved remedial action plan have been completed;
- (2) Any necessary activity and use restrictions have been implemented;
- (3) Any monitoring requirements are being met; and
- (4) All fees and costs due under RSA 146-A, RSA 146-C, RSA 147-A, RSA 147-B and RSA 147-F have been paid.

(e) "Certificate of no further action" means a certificate issued by the department which certifies that:

- (1) No further investigation, remediation, or other actions are required;
- (2) Any necessary activity and use restrictions have been implemented;

(3) Any monitoring requirements necessary to implement an activity and use restriction are being met; and

(4) All fees and costs due under RSA 146-A, RSA 146-C, RSA 147-A, RSA 147-B and RSA 147-F have been paid.

(f) “Contamination” or “contaminated” means the results of discharge of regulated contaminants into groundwater, surface water, or soil.

(g) “Discharge” means the release or addition of any regulated contaminant to land, groundwater, surface water, or subsurface utility.

(h) “Department” means the department of environmental services.

(i) “Engineering documents” means any document that involves the practice of engineering as defined in RSA 310-A.

(j) “Facility” means all contiguous land and structures associated with the activities described in RSA 485-C:13.

(k) “Groundwater” means “groundwater” as defined in RSA 146-A:2,I-c, namely “subsurface water that occurs beneath the water table in soils and geologic formations.”

(l) “Groundwater contamination” means a violation of groundwater quality criteria as shown in Table 1403-1.

(m) “Groundwater management permit” means a permit issued under RSA 485-C:4,VIII to a site owner or legally responsible person to remedy contamination associated with the discharge of a contaminant and to manage the use of the contaminated groundwater.

(n) “Groundwater management zone” means the subsurface volume in which groundwater contamination associated with a discharge of a regulated contaminant is contained. For unlined solid waste landfills with no groundwater contamination, the groundwater management zone means the subsurface volume beneath the area delineated by the property boundary.

(o) “Groundwater release detection permit” means a permit issued under RSA 485-C to a facility owner for detection of a release of a regulated contaminant associated with the activities listed in RSA 485-C:13.

(p) “Junkyard” means a contiguous land area for the storage or deposit, of unregistered motor vehicles which are no longer intended for, or in condition for, legal use on the public highways.

(q) “Legally responsible person” means any person subject to the strict liability provisions of RSA 146-A:3-a, RSA 147-A:9, and RSA 147-B:10.

(r) “µg/L” means micrograms per liter.

(s) “pCi/L” means picocuries per liter.

(t) “Person” means any individual, partnership, company, public or private corporation, political subdivision or agency of the state, department or instrumentality of the United States, or any other legal entity.

(u) “Potential receptor” means any living organism or environmental medium which is in the pathway of contamination from a discharge.

(v) “ppb” means parts per billion.

(w) “Receptor” means a living organism or an environmental medium which is exposed to contamination from a discharge.

(x) “Regulated contaminant” means “regulated contaminant” as defined in RSA 485-C:12, XIII, namely, “any physical, chemical, biological, radiological substance or other matter, other than naturally occurring substances at naturally occurring levels in water, which adversely affects human health or the environment.”

(y) “Remedial action plan” means the proposed action to remove or treat contamination sources, to contain contaminated groundwater within the limits of a proposed groundwater management zone, and to restore groundwater quality to meet groundwater quality criteria of Env-Wm 1403.03.

(z) “Salvage yard” means a contiguous land area encompassing one half acre or more, which has stored or deposited scrap metal, junk machinery, or other material intended for salvage which contains or potentially contains oil, liquids or other contaminants.

(aa) “Site” means the place or location where a discharge is known or suspected to have occurred.

(ab) “Surface water” means “surface waters of the state” as defined by RSA 146-A:2, VI-b, namely “streams, lakes, ponds and tidal waters within the jurisdiction of the state, including all streams, lakes, or ponds bordering on the state, marshes, water courses and other bodies of water, natural or artificial.”

(ac) “USEPA” means United States environmental protection agency.

(ad) “Unlined” means containing no barrier that restricts the downward or lateral flow of the overlying waste, its constituents, and leachate.

[Env-Wm 1403.03 Groundwater Quality Criteria](#). Unless due to a natural condition or unless exempt under Env-Wm 1403.04, the following criteria shall apply to all groundwaters of the state:

(a) Groundwater shall be suitable for use as drinking water without treatment;

(b) Groundwater shall not contain any regulated contaminant at a concentration greater than the ambient groundwater quality standards in Env-Wm 1403.05; and

(c) Groundwater shall not contain any contaminant at a concentration such that the natural discharge of that groundwater to surface water will cause a violation of a surface water quality standard.

[Env-Wm 1403.04 Exemptions to Groundwater Quality Criteria.](#) Groundwater quality shall be exempt from the groundwater quality criteria of Env-Wm 1403.03(a) and (b) if:

(a) The groundwater is within a groundwater discharge zone permitted in accordance with Env-Ws 1500;

(b) The groundwater is within a groundwater management zone permitted in accordance with Env-Wm 1403.12; or

(c) The groundwater is contaminated solely from application of salt and other de-icing chemicals for winter road maintenance.

[Env-Wm 1403.05 Ambient Groundwater Quality Standards.](#)

(a) Pursuant to RSA 485-C:6, ambient groundwater quality standards shall apply to all regulated contaminants which result from human operations or activities. Ambient groundwater quality standards shall not apply to naturally occurring contaminants.

(b) The following criteria shall apply to Table 1403-1, below:

(1) Alkylbenzenes shall include 1,2,4 trimethyl benzene, 1,3,5 trimethyl benzene, n-propyl benzene, n-butyl benzene, 4-isopropyl toluene, tert-butyl benzene, and sec-butyl benzene, and the sum of the total of these compounds shall be compared to the ambient groundwater quality standard;

(2) If current SW 846 quantitation limits are greater than 0.05 ug/l, then the lowest achievable detection limit shall be the ambient groundwater quality standard for benzo(a)anthracene;

(3) If current SW 846 quantitation limits are greater than 0.2 ug/L, then the lowest achievable detection limit shall be the ambient groundwater quality standard for benzo(a)pyrene;

(4) If current SW 846 quantitation limits are greater than 0.05 ug/L, then the lowest achievable detection limit shall be the ambient groundwater quality standard for benzo(b)fluoranthene;

(5) If current SW 846 quantitation limits are greater than 0.5 ug/L, then the lowest achievable detection limit shall be the ambient groundwater quality standard for benzo(k)fluoranthene;

(6) If current SW 846 quantitation limits are greater than 4 ug/L, then the lowest achievable detection limit shall be the ambient groundwater quality standard for



bromoform;

(7) If current SW 846 quantitation limits are greater than 5 ug/L, then the lowest achievable detection limit shall be the ambient groundwater quality standard for chrysene;

(8) If current SW 846 quantitation limits are greater than 0.005 ug/L, then the lowest achievable detection limit shall be the ambient groundwater quality standard for dibenzo(a,h)anthracene;

(9) If current SW 846 quantitation limits are greater than 0.2 ug/L, then the lowest achievable detection limit shall be the ambient groundwater quality standard for 1,3-dichloropropene;

(10) If current SW 846 quantitation limits are greater than 14 ug/L, then the lowest achievable detection limit shall be the ambient groundwater quality standard for 2,4-dinitrophenol;

(11) If current SW 846 quantitation limits are greater than 0.05 ug/L, then the lowest achievable detection limit shall be the ambient groundwater quality standard for indeno(1,2,3-cd)pyrene;

(12) The standard for total trihalomethanes shall be 100 ug/L if the groundwater is affected by chlorinated water supplies; and

(13) Positives for total coliform shall be confirmed by the presence of other wastewater parameters, including, but not limited to, fecal coliform, Escherichia coli, fecal streptococcus, nitrates, and chlorides.

(c) Ambient groundwater quality standards shall be as set forth in Table 1403-1 below:

<b>Table 1403-1</b> <b>AMBIENT GROUNDWATER QUALITY STANDARDS</b>		
<b>Chemical Name</b>	<b>CAS No.</b>	<b>AGQS µg/L (ppb)</b>
Acenaphthene	83-32-9	420
Acenaphthylene	208-96-8	420
Acetone	67-64-1	700
Acrylonitrile	107-13-1	5
Alachor	15972-60-8	2
Aldicarb	116-06-3	3
Aldicarb sulfone	1646-88-4	2
Aldicarb sulfoxide	1646-87-3	4

**Table 1403-1**  
**AMBIENT GROUNDWATER QUALITY STANDARDS**

Chemical Name	CAS No.	AGQS µg/L (ppb)
Aldrin	309-00-2	0.04
Alkyl benzenes		50
Alkyl chloride	107-05-1	7.4
Anthracene	120-12-7	2,100
Antimony	7440-36-0	6
Arsenic	7440-38-2	50
Atrazine	1912-24-9	3
Barium	7440-39-3	2,000
Benzene	71-43-2	5
Benzidine	92-87-5	0.8
Benzo(a)anthracene	56-55-3	0.05
Benzo(a)pyrene	50-32-8	0.2
Benzo(b)fluoranthene	205-99-2	0.05
Benzo(g,h,i)perylene	191-24-2	210
Benzo(k)fluoranthene	207-08-9	0.5
Benzoic Acid	65-85-0	28,000
Beryllium	7440-41-7	4
Biphenyl, 1,1-	92-52-4	350
Boron	7440-42-8	620
Bromodichloromethane	75-27-4	0.3
Bromoform	75-25-2	4
Bromomethane	74-83-9	10
Cadmium	7440-43-9	5
Camphor	76-22-2	200
Carbofuran	1563-66-2	40
Carbon disulfide	75-15-0	7
Carbon tetrachloride	56-23-5	5
Chlordane	57-74-9	2
Chloroaniline, p-	106-47-8	28
bis-(2-chloroethyl)ether	111-44-4	10
bis-(2-chloroisopropyl)ether	39638-32-9	300
bis-(chloromethyl)ether	542-88-1	10
Chloromethane	74-87-3	3
Chlorophenol, 2-	95-57-8	35
Chlorotoluene	95-49-8	100
Chromium (Total)	7440-47-3	100
Chrysene	218-01-9	5

**Table 1403-1**  
**AMBIENT GROUNDWATER QUALITY STANDARDS**

Chemical Name	CAS No.	AGQS µg/L (ppb)
Clopyralid (Stinger 3SC)	1702-17-6	3500
Copper	7440-50-8	1300
Cyanide	57-12-5	200
Cyanazine(Bladex 4L/90DF)	21725-46-2	1
2,4-D (Dichlorophenoxyacetic acid, 2,4-)	94-75-7	70
Dalapon	75-99-0	200
DDD (Dichlorodiphenyl dichloroethane, p,p')	72-54-8	0.1
DDE (Dichlorodiphenyl dichloroethylene, p,p')	72-55-9	0.1
DDT (Dichlorodiphenyl trichloroethane, p,p')	50-29-3	0.1
Dibenzo(a,h)anthracene	53-70-3	0.005
Dibromochloromethane	124-48-1	0.3
Dibromochloropropane	96-12-8	0.2
Dibutylphthalate	84-74-2	34,000
Dichlorobenzene, 1,2- (o-DCB)	95-50-1	600
Dichlorobenzene, 1,3- (m-DCB)	541-73-1	600
Dichlorobenzene, 1,4- (p-DCB)	106-46-7	75
Dichlorobenzidine, 3,3'-	91-94-1	1.3
Dichlorodifluoromethane	75-71-8	1,000
Dichloroethane, 1,1-	75-34-3	81
Dichloroethane, 1,2-	107-06-2	5
Dichloroethylene, 1,1-	75-35-4	7
Dichloroethylene, cis-1,2-	156-59-2	70
Dichloroethylene, trans-1,2-	156-60-5	100
Dichloromethane (Methylene chloride )	75-09-2	5
Dichlorophenol, 2,4-	120-83-2	21
Dichloropropane, 1,2-	78-87-5	5
Dichloropropene, 1,3-	542-75-6	0.2
Dieldrin	60-57-1	0.002
Di(ethylhexyl)adipate	103-23-1	400
Di(ethylhexyl)phthalate (bis-(2-ethylhexyl)phthalate)	117-81-7	6
Dimethyl phthalate	131-11-3	50,000
Dimethylphenol, 2,4-	105-67-9	140
Dinitrophenol, 2,4-	51-28-5	14
Dinitrotoluene, 2,4-	121-14-2	10
Dinoseb	88-85-7	7
1,2-Diphenylhydrazine	122-66-7	10
Diquat	85-00-7	20

**Table 1403-1**  
**AMBIENT GROUNDWATER QUALITY STANDARDS**

Chemical Name	CAS No.	AGQS µg/L (ppb)
Endosulfan	115-29-7	42
Endothall	145-73-3	100
Endrin	72-20-8	2
Ethylbenzene	100-41-4	700
Ethylene dibromide	106-93-4	0.05
Ethylene glycol	107-21-1	7,000
Fluoranthene	206-44-0	280
Fluorene	86-73-7	280
Fluoride	16984-48-8	4,000
Glyphosate	1071-83-6	700
Gross alpha radionuclides		15 pCi/L
Heptachlor	76-44-8	0.4
Heptachlor epoxide	1024-57-3	0.2
Hexachlorobenzene	118-74-1	1
Hexachlorobutadiene	87-68-3	0.5
Hexachlorocyclohexane, alpha	319-84-6	0.006
Hexachlorocyclohexane, beta	319-85-7	0.02
Hexachlorocyclohexane, gamma (Lindane)	58-89-9	0.02
Hexachlorocyclopentadiene	77-47-4	50
Hexachlorodibenzodioxin	34465-46-8	0.0221
Hexachloroethane	67-72-1	1.9
Indeno(1,2,3-cd)pyrene	193-39-5	0.05
Isophorone	78-59-1	100
Isopropyl benzene	98-82-8	280
Lead	7439-92-1	15
Mercury	7439-97-6	2
Methoxychlor	72-43-5	40
Methyl ethyl ketone (MEK)	78-93-3	170
Methyl isobutyl ketone (MIBK)	108-10-1	350
Methylnaphthalene, 2-	91-57-6	280
Methyl phenol, 2- (o-cresol)	95-48-7	350
Methyl phenol, 4- (p-cresol)	106-44-5	350
Methyl tert butyl ether	1634-04-4	70
Metolachlor (Dual 8E/25G)	51218-45-2	70
Metribuzin (Sencor 75DF)	21807-64-9	100
Monochlorobenzene (Chlorobenzene)	108-90-7	100
Naphthalene	91-20-3	20

**Table 1403-1**  
**AMBIENT GROUNDWATER QUALITY STANDARDS**

Chemical Name	CAS No.	AGQS µg/L (ppb)
Nickel	7440-02-0	100
Nitrate	14797-55-8	10,000
Nitrite	14797-65-0	1,000
Oxamyl	23135-22-0	200
Pentachlorophenol	87-86-5	1
Phenanthrene	85-01-8	210
Phenol	108-95-2	4,000
Picloram	1918-02-1	500
Polychlorinated biphenyls (PCBs)	1336-36-3	0.5
Potassium	7440-09-7	35,000
Pyrene	129-00-0	210
Radium 226 and 228	7740-14-4	5 pCi/L
Selenium	7782-49-2	50
Silver	7440-22-4	50
Simazine	122-34-9	4
Strontium 90	7740-24-6	8 pCi/L
Styrene	100-42-5	100
Sulfate	14808-79-8	400,000
TCDD, 2,3,7,8- (Dioxin)	1746-01-6	0.00003
Tetrachloroethane, 1,1,1,2-	630-20-6	70
Tetrachloroethane, 1,1,2,2,-	79-34-5	0.17
Tetrachloroethylene (TCE)	127-18-4	5
Tetrahydrofuran	109-99-9	154
Thallium (thallium chloride)	7440-28-0	2
Toluene	108-88-3	1,000
Total Coliform	-	CTS/100ml
Toxaphene	8001-35-2	3
TP, 2,4,5- (Trichlorophenoxyacetic acid, 2,4,5-)	93-76-5	50
Trichlorobenzene, 1,3,5-	108-70-3	40
Trichlorobenzene, 1,2,4-	120-82-1	70
Trichloroethane, 1,1,1-	71-55-6	200
Trichloroethane, 1,1,2-	79-00-5	5
Trichloroethylene	79-01-6	5
Trichlorofluoromethane	75-69-4	2,000
Trichloromethane (Chloroform)	67-66-3	6
Trichlorophenol, 2,4,5-	95-95-4	700
Trichlorophenol, 2,4,6-	88-06-2	10

<b>Table 1403-1</b> <b>AMBIENT GROUNDWATER QUALITY STANDARDS</b>		
<b>Chemical Name</b>	<b>CAS No.</b>	<b>AGQS µg/L (ppb)</b>
Trichloropropane, 1,2,3-	96-18-4	40
Trihalomethanes (total)		6
Tritium	10028-17-8	20,000 pCi/L
Vinyl chloride	75-01-4	2
Xylenes (mixed isomers)	1330-20-7	10,000

[Env-Wm 1403.06 Notification of Groundwater Quality Violation.](#)

(a) Within 60 days of discovery, a violation of the groundwater quality criteria of Env-Wm 1403.03 shall be reported to the department by the legally responsible person, with the following exceptions:

- (1) Facilities with groundwater release detection permits which shall report in accordance with Env-Wm 1403.21(c)(4);
- (2) Public water supplies, which shall report in accordance with Env-Ws 350 through 359;
- (3) Facilities with groundwater discharge permits issued under Env-Ws 1500; and
- (4) Groundwater quality violations associated with a spill or a release previously reported to the department.

(b) Persons notifying the department of a violation of groundwater quality standards shall provide as much of the following information as is available:

- (1) The name and phone number of the person notifying the department;
- (2) Data on the nature and location of the violation;
- (3) The name and phone number of the owner of the property on which the data was obtained;
- (4) The name(s) and phone number(s) of the party(ies) potentially responsible for the violation; and
- (5) The cause of the violation.

[Env-Wm 1403.07 Site Investigation.](#)

(a) Following the notification of a violation of the groundwater quality criteria pursuant to Env- Wm 1403.06, the legally responsible party shall investigate the site and the off-site surrounding area for possible impacts of the contamination.

(b) The legally responsible person shall submit a report of the site investigation required in 1403.07(a) to the department for approval within 120 days of the department's receipt of the notice of violation, unless an alternative time schedule is approved by the department.

(c) The site investigation shall:

- (1) Determine the location and full extent of contamination; and
- (2) Identify receptors and potential receptors.

(d) The site investigation report shall include the following:

(1) The site information including:

- a. The site name;
- b. Site address;
- c. The property deed reference by county book and page and property tax map and lot number; and
- d. The department's site identification number;

(2) The contact person's name, mailing address, and telephone number;

(3) To the extent ascertainable, a history of site ownership and operation and possible contamination sources related to past site use for the last 50 years or since initial development, whichever is less;

(4) A color photocopy of a USGS map, 7-1/2 minute series if available, which clearly identifies the site location;

(5) A site plan prepared in accordance with the following:

- a. The plan shall include a title, a legend, and a true north arrow;
- b. The plan shall be drawn to scale and the scale shall be noted on the plan and include a graphic scale bar;
- c. The base plan sources from which the site plan was derived shall be noted on the plan;

d. The location, elevation and datum of a recoverable bench mark shall be included but if a bench mark referenced to National Geodetic Vertical Datum (NGVD) is within 1,000 feet of the site, elevation shall be recorded using NGVD and the source of the NGVD bench mark information shall be noted on the plan;

e. Ground surface spot elevations and contours to show surface topography; and

f. The site plan and associated maps/plans shall identify and locate, to the extent ascertainable, the following:

1. Property lines;
2. Surface water bodies on and within 100 feet of the site;
3. Areas of known discharges of contaminants on the site and possible contaminant sources listed in Env-Wm 1403.07(d)(10);
4. Water supply wells on and within 100 feet of the site;
5. Piezometers and monitoring wells on and within 100 feet of the site;
6. Groundwater contours which show groundwater flow direction, using measured water level elevations in piezometers, monitoring wells, and surface water stations within 100 feet of the site;
7. Physical structures and buildings, including information on building use and existence of basements, on and within 100 feet of the site;
8. Paved areas on the site;
9. Drainage swales on the site; and
10. Underground utilities on the site;

(6) If the site plan is larger than 11" x 17," a copy of the site plan scaled to fit onto 8 1/2" x 11" or 11" x 17" sheets and modified to make the items listed in Env-Wm 1403.7(d)(5)a., 1403.07(d)(5)b., and Env-Wm 1403.07(d)(5)f.1. through Env-Wm 1403.07(d)(5)f.6. legible;

(7) A potential receptors map using the tax map as a base which depicts the limit of contamination, identifies the name or numbering scheme, and locates, to the extent ascertainable, the following listed items located within 1,000 feet of the site:

- a. Streets;
- b. Properties, including tax map and lot, ownership, and land use information;



- c. Surface water bodies;
- d. Potentially sensitive human subpopulations such as daycare centers, schools, playgrounds, parks; and
- e. Lots with water supply wells, including type of use;

(8) A table summarizing applicable on-site underground and above ground storage tank information, to the extent known, including:

a. Department storage tank facility information, if applicable, including:

- 1. Facility name;
- 2. Facility number;
- 3. Facility location;
- 4. Facility owner's name and mailing address; and
- 5. Tank registration number;

b. Date of installation and repairs of all tank systems on-site and date of removal of all tank systems previously located on-site;

c. Size and construction material of all tanks on site; and

d. Substances presently and previously stored in all tanks.

(9) A description of all known discharges of regulated contaminants, including the following information:

a. Date and description of the discharge, including estimated quantities lost and recovered, the location of the discharge, and the person responsible for the discharge;

b. Date the discharge was reported to the department, if reported; and

c. Information on any initial response action taken, including:

- 1. A description of action performed in response to the discharge including any on-going clean-up activities;
- 2. The name of the department representative present during response action;
- 3. The contamination source, odors, sheens, type of waste, visible product, and quantities;

4. A description of sampling methodology and analytical field screening measurements;
5. The criteria and field methods used to assess the extent of the contamination source;
6. Photographs of response action including removed tank systems and pump island; and
7. Identification of disposal location of source material, including any tank(s), lines, buried drums and contaminated soil;

(10) To the extent ascertainable, a description of any possible past and present contaminant sources, including:

- a. Underground storage tank systems, including associated piping;
- b. Above ground storage tank systems, including associated piping;
- c. Landfills and dumps;
- d. Lagoons;
- e. Pits;
- f. Dry wells;
- g. Floor drains and discharge locations;
- h. Septic systems;
- i. Areas of surface discharges or spills;
- j. Drum storage areas;
- k. Areas used to store, treat, or dispose of hazardous wastes or hazardous substances;
- l. Areas of stressed or dead vegetation or lack thereof on the site;
- m. Areas of stained or discolored soils;
- n. Stockpiled soils; and
- o. Buried drum areas;

(11) A list of any previously completed investigations and reports pertinent to the site, and, if more than three previously completed investigations and reports are available, a summary table shall be compiled showing the following information:

- a. The date of the report;
- b. The consultant's name; and
- c. The scope of investigation;

(12) All the information from the previous investigations and reports, if not already on file;

(13) A summary of all governmental files reviewed;

(14) A description of the geology of the site using text and graphical cross sections, including:

- a. A description of surficial geologic materials, including estimates of hydraulic conductivity, hydraulic gradients, and seepage velocity, using:

1. Soil types;
2. Thickness; and
3. Backup calculations to support the estimates;

- b. Test pit and boring log data, including:

1. Soil sample descriptions according to one of the following;

- i. Unified Soil Classification System;

- ii. Burmister Classification System;

- iii. "Standard Test Method for Classification of Soils for Engineering Purposes," American Society for Testing and Materials, Designation: D2487, approved June 29, 1990, published August 1990 and readopted 1993; or

- iv. "Standard Practice for Description and Identification of Soils, Visual Manual Method," American Society for Testing and Materials Designation: D2488, approved June 29, 1990, published August 1990 and readopted 1993;

2. Drilling methods;

3. "N-values" according to "Penetration Test and Split Barrel Sampling of Soil," American Society for Testing and Materials Designation: D1586, approved October 15, 1992;
  4. Water table observations;
  5. Odors observed; and
  6. Organic vapor analyzer results to be shown on the boring logs, test pit logs, and in a summary table;
- c. When encountered and drilled, bedrock description, depth and characteristics, including rock quality designation (RQD) of recovered rock cores and description of the nature and depth of any fractures or fracture zones encountered if necessary, to develop the conceptual model, as specified in Env-Wm 1403.07(d)(23);
  - d. A copy of the site plan showing the orientation of the graphical geologic cross section(s) and the location of test pits, borings, monitoring wells, piezometers, and other sources of geologic information for the site; and
  - e. A geologic cross-section which shall include, at a minimum, the following information:
    1. The horizontal and vertical scale of each cross-section;
    2. Approximate ground surface elevations and inferred geologic contacts between the major lithologic units;
    3. A complete textural description of the major lithologic units, including geologic interpretation, such as till, stratified drift, weathered bedrock;
    4. The location of all data sources, including soil borings, monitoring wells, test pits, and bedrock cores upon which the geologic interpretations are based;
    5. The line of section, referenced to an appropriate site plan;
    6. The offset distance for all data points not located directly on the line of section;
    7. The screened interval of all groundwater monitor wells and piezometers, with measured water level or potentiometric surface elevations;
    8. The measured elevations of any surface water features intercepted by the line of section; and
    9. Contaminant concentrations at each data point indicated on the cross-

section, as appropriate, based on the purpose and results of the site investigation;

(15) Groundwater elevation information including a table containing:

- a. Groundwater elevations;
- b. Top of well casing elevations;
- c. Measured depth to water table from top of casing; and
- d. Free product information, if present, including:
  - 1. Measured depth to free product from top of casing; and
  - 2. Free product thickness;

(16) Groundwater sampling data, including:

- a. The sample locations;
- b. Sampling dates;
- c. Sampling methodologies;
- d. Sample hold times;
- e. Analytical methodologies;
- f. Analytical results; and
- g. For all monitoring wells where contamination has been detected, analytical results for a minimum of 2 sets of samples collected at least 2 weeks apart;

(17) Surface water sampling data, including:

- a. The sample locations;
- b. Sampling dates;
- c. Sampling and analytical methodologies;
- d. Analytical results; and
- e. For all surface water sampling points where contamination has been detected, analytical results for a minimum of 2 sets of samples collected at least 2 weeks apart;

(18) A list of water supply wells at risk of contamination including to the extent ascertainable:

- a. Owner's name, address, tax map and lot number;
- b. Well construction information;
- c. Sampling dates;
- d. Sampling and analytical methodologies;
- e. Analytical results; and
- f. For all supply wells where contamination is detected and access is provided by the property owner, analytical results for a minimum of 2 sets of samples collected at least 2 weeks apart;

(19) Groundwater, surface water, and water supply well analytical data summarized in a table which indicates:

- a. The date of sampling;
- b. The sampling and analytical methodologies;
- c. The sample locations;
- d. The contaminants;
- e. The contaminant concentrations; and
- f. Whether the regulatory limits have been exceeded;

(20) A distribution map which depicts the distribution of groundwater contaminants and groundwater concentration contours which indicate the predominant contamination movement characteristics;

(21) Soil sampling data for specific contaminants summarized in a table which includes:

- a. The sampling date;
- b. The sample locations;
- c. The contaminants; and
- d. Whether the regulatory limits have been exceeded;

(22) A soil contaminant distribution map which depicts the lateral extent of expected soil exceedances of the applicable regulatory standards based on known information;

(23) A conceptual model that:

- a. Describes the occurrence and movement of groundwater and contamination at the site;
- b. Provides a technical explanation of the nature and extent of contamination in the soil, surface water, and groundwater as depicted in the contaminant distribution maps required under Env-Wm 1403.07(d)(20) and Env-Wm 1403.07(d)(22);
- c. Identifies:
  1. Potential contaminant sources;
  2. The pathways of contaminant migration;
  3. Degradation pathways;
  4. Transport mechanisms; and
  5. Potential receptors, in light of all available geologic, hydrogeologic and contaminant distribution data; and
- d. Shall form the basis for all decisions regarding the site monitoring program and remediation program and final site closure;

(24) Recommendations, including a discussion on future actions, which may include one or more of the following:

- a. Interim remedial actions to abate immediate risks or prevent the further release of contaminants, which shall include provisions for:
  1. Alternate water to contaminated water supplies;
  2. Free product mitigation;
  3. Immediate source removal or containment;
  4. Abatement of air hazards; and
  5. Fire or explosive threats;
- b. Preparation of a remedial action plan;

- c. Additional site investigation work; and
- d. Preliminary delineation of the groundwater management zone;

(25) A title sheet which indicates:

- a. The type of department submittal;
- b. The site name;
- c. Site address;
- d. Department identification number;
- e. Underground storage tank registration number;
- f. Resource Conservation & Recovery Act identification number;
- g. Name, address, and telephone number of the site owner;
- h. Name, address, and telephone number of the person(s) preparing the report;
- i. Date of the report; and
- j. A brief comment regarding the environmental risks posed by the site; and

(26) Appendices which shall include:

- a. Color photocopies of site photographs showing surficial features;
- b. A discussion of the field procedures used including methods for installing monitoring wells, collecting soil samples, and collecting water samples;
- c. Boring logs and monitoring well construction data;
- d. Soil laboratory data;
- e. Groundwater laboratory data;
- f. Table of water level measurements and elevations found in piezometers and monitoring wells used to develop the groundwater contours;
- g. Detailed calculations and summary of data used for supplemental analysis, if any;
- h. Copy of the site investigation request letter from the department; and



i. Field screening data.

[Env-Wm 1403.08](#)     [Remedial Action Plan](#).

(a) Unless the department determines, based on the site investigation, that a remedial action plan is not required or the site meets the no further action criteria of Env-Wm 1403.19, the legally responsible person required to conduct a site investigation under Env-Wm 1403.07 shall submit a remedial action plan to remove, treat, or contain contamination.

(b) The remedial action plan shall be submitted to the department within 120 days following department approval of the site investigation report, unless an alternative time schedule is approved by the department.

(c) The remedial action plan shall:

(1) Provide for protection of human health and the environment; and

(2) Recommend action to:

a. Remove, treat, or contain the contamination source to prevent the additional release of contaminants to groundwater, surface water and soil, and to eliminate the health hazard associated with direct exposure to the contaminant source;

b. Mitigate indoor air contamination resulting from the migration of vapors from contaminated soil and groundwater;

c. Contain contaminated groundwater within the limits of a proposed groundwater management zone, delineated in accordance with the procedures of Env-Wm 1403.14; and

d. Restore groundwater quality to meet the quality criteria of Env-Wm1403.03.

(d) The remedial action plan shall recommend action to remove or treat the source of contamination unless:

(1) Source removal or treatment is determined not to be feasible using the criteria set forth in Env-Wm 1403.09; and

(2) The department concurs with the determination.

(e) The remedial action plan shall include the following:

(1) A summary of the site investigation report, including the conclusions and recommendations made in the site investigation report and a summary of the conceptual model;

(2) A narrative summary of the extent and distribution of contamination, using figures,

cross-sections, maps, and tables;

(3) An evaluation of at least three remedial alternatives, one which shall be natural attenuation, which includes the following for each alternative:

- a. All supporting documentation;
- b. The feasibility and ease of implementation;
- c. The cost effectiveness using the net worth of all future costs and a 5 percent discount rate; and
- d. An estimate of clean-up time based on:
  1. Experience with similar sites;
  2. Published data for similar sites; or
  3. A quantitative evaluation of the subject site;

(4) Recommendations for conducting any pilot tests before proceeding with final design and construction of the selected alternative;

(5) A plan of the preliminary design and construction details of the remedial system;

(6) The operational details of the remedial action, including:

- a. Sampling and reporting frequency; and
- b. A summary of the estimated cost of the alternative, including pilot tests, design, construction, annual operation and maintenance, and groundwater monitoring;

(7) The final and interim objectives and criteria for evaluating the remedial action, including specific performance standards and applicable regulations and statutes;

(8) A compliance schedule, including interim compliance dates, for achieving performance standards for all phases of contamination;

(9) A description of the methodology for evaluating the nature and extent of the remaining contamination after completion of remedial action, including monitoring locations and frequency;

(10) A schedule for implementing each remedial activity;

(11) A list of all state, federal, and local regulations and statutes which apply to the proposed remedial action with an explanation of the applicability;

(12) A list of federal, state, and local permits which shall be required to implement the remedial action plan;

(13) Recommendations to provide alternate water to receptors when an affected drinking water source(s) no longer meet the ambient groundwater quality standards of Env-Wm 1403.05;

(14) The proposed delineation of the groundwater management zone overlaid on a tax map and described in the text in compliance with Env-Wm 1403.14;

(15) A list of activity and use restrictions;

(16) Backup calculations to support assumptions or information presented in the remedial action plan, if applicable;

(17) A color photocopy of a USGS map, 7-1/2 minute series, which clearly identifies the site location;

(18) Scaled drawings at a common engineering scale on an 8 1/2" x 11" or 11" x 17" sheet showing:

- a. The contamination source or sources, the vertical and lateral extent of the soil and groundwater contamination and the location of actual and potential receptors;
- b. Geologic cross sections across the site showing the water table, stratigraphy, extent of contamination, and subsurface structures;
- c. The location of the proposed remedial treatment systems and areas of influence; and
- d. A preliminary process flow diagram showing major system components and controls; and

(19) Color photocopies of site photographs showing surficial features.

(f) All engineering documents shall be prepared by, and bear the seal of, a professional engineer licensed under RSA 310-A.

[Env-Wm 1403.09 Remedial Action Plan Approval](#). The department shall approve the remedial action plan, upon determining that the plan meets all of the following criteria:

- (a) Human health and the environment shall be protected;
- (b) Groundwater quality criteria specified in Env-Wm 1403.03 shall be met;
- (c) Sources of contamination shall be controlled so as to reduce or eliminate further releases

of regulated contaminants to groundwater, surface water, and soil;

(d) Contaminated soil shall be removed, treated, or contained to reduce the human health risk associated with the direct exposure via dermal contact, ingestion, and inhalation to the contaminant soil;

(e) The existing risk shall be reduced to the greatest extent practicable, balancing costs and benefits by evaluating the risk to human health and the environment by the methods described in the American Society for Testing and Materials Standard E 1730-95 entitled "Guide for Risk-Based Corrective Action Applied to Petroleum Release Sites" dated November 1995;

(f) Future risks of releases shall be reduced to the greatest extent practicable, balancing costs and benefits;

(g) Long-term management, including operation and maintenance of the remediation equipment or facility and site monitoring requirements, shall be minimized;

(h) Potential need for modification of the remedy shall be minimized;

(i) Resource value of groundwater impacted by the contamination, including current and anticipated future land use, shall be protected; and

(j) Long-term reliability of engineering controls shall be demonstrated.

Env-Wm 1403.10 Remedial Action Plan Implementation.

(a) Following approval of the remedial action plan by the department, the legally responsible person shall submit a design report and construction plans and specifications for the approved alternative.

(b) All engineering documents shall be prepared by, and bear the seal of, a professional engineer licensed under RSA 310-A.

(c) The design report and construction plans and specifications shall be submitted to the department within 90 days of department approval of the remedial action plan.

(d) The design report shall include as appropriate:

(1) A description of the purpose and function of the remedial system;

(2) A list of design criteria including, but not limited to, flow rate and treatment efficiency;

(3) Performance standards;

(4) Characteristics, quantity, and location of environmental media and contaminants to be treated;

- (5) Expected waste products which will be generated and their means of disposal, if any;
  - (6) Pilot test results used in the preparation of the design; and
  - (7) Catalog cuts and other manufacturers' data describing the equipment included in the design.
- (e) Construction plans and specifications shall:
- (1) Contain sufficient detail for construction of the remedial system; and
  - (2) Be prepared in accordance with generally accepted engineering and construction standards and practices.
- (f) Construction plans and specifications shall include:
- (1) A site plan showing the location of:
    - a. Existing physical features and relevant elevations;
    - b. Monitoring wells;
    - c. Extraction wells;
    - d. Treatment building;
    - e. Trench locations; and
    - f. Treated water discharge locations, as applicable;
  - (2) A process and instrumentation diagram, showing extraction and treatment system components and instrumentation;
  - (3) A treatment building floor plan, if applicable;
  - (4) A site specific health and safety plan;
  - (5) Specifications for materials and workmanship;
  - (6) A construction schedule;
  - (7) Relevant sections and details; and
  - (8) Contractor's bid and measurement and payment section from the construction contract between the owner and contractor.

(g) An as-built construction report shall be submitted to the department, within 90 days of construction completion, for any remedial action plan approved by the department.

(h) The legally responsible person shall include the following on the as-built construction report:

- (1) Neatly marked-up drawings and specifications indicating changes from the design documents;
- (2) Results of any tests or measurements made during construction;
- (3) A written summary of any significant modifications to the designed system, including reasons for the modifications; and
- (4) Significant modifications that affect the performance standards shall be submitted to the department for approval prior to construction.

[Env-Wm 1403.11 Corrective Action Without a Remedial Action Plan.](#)

(a) The legally responsible person may, in the interest of minimizing contamination and promoting more effective remediation, begin remediation of soil, groundwater, and surface water before the remedial action plan is approved by the department, provided he/she :

- (1) Notifies the department in writing of the intent to begin remediation;
- (2) Incorporates the self-initiated remediation measures into the plan that is submitted to the department for approval; and
- (3) Complies with the requirements of all applicable local, state, and federal rules and statutes.

(b) Eligibility for reimbursement from the petroleum reimbursement fund for such work at petroleum contaminated sites shall be evaluated under the rules contained in Odb 200 through Odb 400.

[Env-Wm 1403.12 Groundwater Management Permit.](#)

(a) A legally responsible person shall be required to apply for and obtain a groundwater management permit for a site where:

- (1) The discharge of a regulated contaminant at that site has caused and continues to cause the groundwater quality criteria of Env-Wm 1403.03 to be violated; or
- (2) Unlined solid waste landfills are located.

(b) The groundwater management permit shall:

- (1) Establish a groundwater management zone;
- (2) Require implementation of measures to restore groundwater quality within the zone to meet groundwater quality criteria, which may include monitoring of natural attenuation;
- (3) Restrict the use of groundwater within the zone; and
- (4) Require monitoring of the effectiveness of remedial measures and groundwater quality within the zone.

(c) A groundwater discharge permit shall not be required for discharges to groundwater associated with an approved remedial action plan provided a groundwater management permit has been issued for the site.

[Env-Wm 1403.13 Groundwater Management Permit Procedures.](#)

(a) An applicant for a groundwater management permit shall submit a signed application for a groundwater management permit:

- (1) Within 60 days following department approval of a remedial action plan; or
- (2) Within 60 days of a request by the department to submit an application.

(b) The application shall contain the following information:

- (1) The site name, address, property deed reference by county book and page and property tax map and lot number, and the department site number;
- (2) The site owner's name, mailing address, and telephone number;
- (3) The permit applicant's name, if different than site owner, mailing address, and telephone number;
- (4) The contact person's name, mailing address, and telephone number;
- (5) A summary of the site investigation report;
- (6) A summary of the remedial action plan and status of the remedial action performed to date;
- (7) A groundwater management zone map, using a tax map as a base, which identifies and locates to the extent ascertainable, the following:

- a. A groundwater management zone boundary;

- b. Any deeded easements which restrict the use of the groundwater within the zone;
  - c. Any streets within 1,000 feet of the site;
  - d. Any properties, including tax map and lot, within 1,000 feet of the site;
  - e. Any surface water bodies on and within 500 feet of the groundwater management zone; and
  - f. Any lots with water supply wells, including type of use, within 500 feet of the groundwater management zone;
- (8) A site plan prepared in accordance with the requirements of Env-Wm 1403.07(d)(5) with the following additions:
- a. Existing and proposed groundwater monitoring wells that will be monitored;
  - b. Drinking water wells that will be monitored; and
  - c. Surface water sampling points;
- (9) If the site plan is larger than 11" x 17," a copy of the site plan scaled to fit onto 8 ½" x 11" or 11" x 17" sheets and modified to make the items listed in Env-Wm 1403.07(d)(5)a., Env-Wm 1403.07(d)(5)b., Env-Wm 1403.07(d)(5)f.1. through Env-Wm 1403.07(d)(5)f.6. and Env-Wm 1403.13(b)(8)a. through Env-Wm 1403.13(b)(8)c. legible;
- (10) A table of current water level measurements found in piezometers and monitoring wells used to develop the groundwater contours;
- (11) A table summarizing all monitoring results to date for the last 5 years, if applicable, from existing monitoring points unless a longer period is specifically requested by the department;
- (12) An updated list, including copies if not already available, of:
- a. Any previously completed investigations and reports pertinent to the site; and
  - b. A summary table, if more than 3 previously completed investigations and reports are available, which includes, the following information:
    - 1. Date of report;
    - 2. Consultant name; and
    - 3. Scope of investigation;



(13) A detailed proposal for a water quality monitoring program, including proposed monitoring schedule, parameters to be analyzed and monitoring locations with supporting information justifying the locations, frequency and parameters selected;

(14) Well construction details of monitoring wells and elevations of top of wells not previously referenced in the site investigation submitted under Env-Wm 1403.07(d)(14)b.;

(15) Certification that application has been made for all required local, state, or federal permits;

(16) Certification of notice to the governing body of the municipality in which the facility is located with notification made by providing a copy of a completed permit application to the town/city clerk of the municipality;

(17) Documentation that rights of access necessary to conduct the approved remedial action have been obtained;

(18) Documentation that any necessary easement ownership rights have been obtained to restrict the use of water wells within the groundwater management zone and filed in the registry of deeds; and

(19) A list of properties located within the groundwater management zone including:

- a. Owner's name, mailing address and telephone number;
- b. Property address; and
- c. Deed reference, including county book and page and tax map and lot number.

(c) A \$1,000 fee as required under RSA 485:3-C shall accompany the permit application. All checks shall be made payable to the "State of New Hampshire-D.E.S."

(d) Within 90 days from receipt of a completed permit application, the department shall issue a permit for a period of 5 years, subject to renewal, if compliance with Env-Wm 1403.12 and Env-Wm 1403.13 has been demonstrated. The department shall notify the applicant of its decision in writing by issuing a permit or denying the application.

(e) The groundwater management permit shall contain conditions for implementing the remedial action plan and monitoring its effectiveness and permit conditions for submitting periodic status reports.

(f) The periodic status reports shall be submitted annually and include the following information:

- (1) A brief summary of work performed;

- (2) An update of the site conceptual model;
- (3) A tabular and graphical summary of monitoring data showing trends in contaminant concentrations, relevant geochemical data, and cumulative mass of contaminant removed;
- (4) An evaluation of operation and maintenance requirements, and recommendations for modifications, adjustments, or upgrades; and
- (5) An evaluation of progress towards meeting performance standards including recommendations for modifications or adjustments.

(g) The department shall enter any facility that is or should be permitted for the purpose of collecting information, examining records, collecting samples or undertaking other action associated with the permit, if an actual or suspected violation of these rules exist.

[Env-Wm 1403.14 Groundwater Management Zone.](#)

(a) There shall be no violation of groundwater quality criteria outside the boundary of the groundwater management zone.

(b) Boundary line delineation of the groundwater management zone shall:

- (1) Be supported by hydrogeologic data; and
- (2) Consider:
  - a. The geologic characteristics of the site;
  - b. The estimated groundwater flow patterns; and
  - c. Contaminant transport and degradation mechanisms.

(c) The following boundaries shall be examined:

- (1) Boundaries by induced hydraulic gradient control;
- (2) Natural hydrogeologic boundaries such as groundwater divides or surface water bodies; and
- (3) Boundaries created by natural attenuation of contamination.

(d) The boundaries of the groundwater management zone shall be denoted by clearly identifiable physical features unless the boundaries coincide with existing property lines.

(e) Use of groundwater within the groundwater management zone for drinking water shall

be restricted by easement or ownership, except where alternate water is made available or is provided to all lots of record by the permittee.

(f) Where water wells located within the groundwater management zone are contaminated, provision shall be made for an alternative drinking water supply sized to serve all lots of record based upon their current use at the time of application for a groundwater management permit. An alternate water supply shall meet applicable federal and state requirements, including water quality requirements.

(g) Groundwater extraction from a well within the groundwater management zone shall be restricted by easement or ownership if required to implement the remedy.

[Env-Wm 1403.15 Groundwater Management Permit Compliance Criteria.](#)

(a) Within 30 days of discovery of a violation of an ambient groundwater quality criteria at or outside the groundwater management zone boundary, the permittee shall notify the department in writing

(b) Within 60 days of discovery, the permittee shall submit a workscope for development of a revised remedial action plan, including a schedule of milestones, to the department for approval.

(c) The department shall approve the revised remedial action plan if compliance with Env-Wm 1403.08 has been demonstrated.

(d) If implementation of the approved remedial action plan fails to meet performance standards specified in the approved plan, the permittee shall:

(1) Notify the department in writing; and

(2) Submit a workscope for development of a revised remedial action plan, including a schedule of milestones, to the department for approval within 30 days.

(e) The department shall approve the remedial action plan if compliance with Env-Wm 1403.08 has been demonstrated.

(f) Groundwater shall be monitored and managed in compliance with the permit conditions until contamination sources are removed or treated and compliance with groundwater quality criteria is achieved.

[Env-Wm 1403.16 Notification to Landowners.](#)

(a) Within 30 days of the date the department approves the groundwater management permit, the permittee shall provide notice of the permit by certified mail to all owners of lots of record within the groundwater management zone.

(b) Within 60 days the permittee shall submit documentation of this notification to the department.

[Env-Wm 1403.17 Recordation.](#)

(a) Within 60 days of the date of department approval, the permit holder shall record notice of the permit in the registry of deeds in the chain of title for each lot within the groundwater management zone. A copy of the recorded notice shall be submitted to the department within 30 days of recordation. If the department approves the use of municipal land-use controls as an alternative form of notice, such recordation shall not be required.

(b) Within 60 days of receipt of a release of recordation for notice of the permit from the department, the permittee shall record the release of recordation in the registry of deeds in the chain of title for the lot designated in the release. A copy of the recorded release of recordation shall be submitted to the department within 30 days of recordation.

[Env-Wm 1403.18 Certificate of Completion.](#) Upon completing of the remedial action, the department shall issue a certificate of completion if:

(a) All activities specified in the approved remedial action plan, with the exception of soil and groundwater monitoring, have been completed;

(b) The performance standards specified in the remedial action plan and the groundwater management permit have been achieved;

(c) All monitoring requirements under the groundwater management permit are being met;

(d) Any necessary activity and use restrictions have been implemented;

(e) Any penalty or fine issued under RSA 146-A, RSA 146-C and RSA 147-A has been paid;

(f) All invoices associated with the department's recoverable cost pursuant to RSA 146-A, RSA 146-C, RSA 147-A and RSA 147-B have been paid; and

(g) All fees and costs due under RSA 147-F have been paid.

[Env-Wm 1403.19 Certificate of No Further Action.](#) The department shall issue a certificate of no further action which certifies that no additional investigation, remedial measures or groundwater monitoring shall be required by the department if:

(a) Any human health hazards associated with direct exposure via dermal contact, ingestion, and inhalation to contaminants have been eliminated;

(b) Any necessary activity and use restrictions have been implemented;

(c) Any sources of groundwater contamination have been eliminated;

(d) All on-site and off-site dissolved contamination levels meet groundwater quality criteria

as specified in Env-Wm 1403.03;

(e) Any penalty or fine issued under RSA 146-A, RSA 146-C and RSA 147-A has been paid;

(f) All invoices associated with the department's recoverable cost pursuant to RSA 146-A, RSA 146-C, RSA 147-A, and RSA 147-B have been paid; and

(g) All fees and costs due under RSA 147-F have been paid.

[Env-Wm 1403.20 Groundwater Release Detection Permit.](#)

(a) The owners of the following facilities shall be required to obtain a groundwater release detection permit:

- (1) Hazardous waste disposal facilities as defined under RSA 147-A;
- (2) Lined solid waste landfills;
- (3) Lined wastewater facilities; and
- (4) Facilities for processing soils contaminated with petroleum products;

(b) A groundwater release detection permit shall be required for the following activities in a class GAA wellhead protection area as defined in RSA 485-C:2,XVIII:

- (1) The siting or operation of a solid waste composting facility;
- (2) The siting or operation of a resource recovery facility;
- (3) The outdoor storage of road salt or other deicing chemicals in bulk;
- (4) The operation of an existing snow dump; and
- (5) The operation of an existing junk or salvage yard.

(c) A groundwater release detection permit shall not be required for a facility or activity permitted under a groundwater discharge permit or a groundwater management permit.

[Env-Wm 1403.21 Groundwater Release Detection Permit Compliance Criteria.](#)

(a) The permittee shall propose a detection monitoring program which includes, but is not limited to, monitoring for the constituents listed in Table 1403-1. Monitoring shall be conducted during the active life of the facility, including closure, and the post-closure period in accordance with the specific requirements of the monitoring program established in the release detection permit. The department shall delete any of the detection monitoring parameters for a facility if the permittee demonstrates that the constituents are not contained in the waste managed at the facility.

(b) The permittee shall establish original background concentrations of all constituents required in the detection monitoring. For the purposes of this paragraph, background concentrations means concentrations detected in areas unaffected by the facilities permitted under the release detection permit.

(c) If the concentration of any constituent in the detection monitoring is above the background value at any downgradient monitoring well, the permittee shall proceed as follows:

- (1) The permittee shall notify the department within 10 days;
- (2) The permittee shall conduct assessment monitoring for each monitoring well for which the concentration of any constituent is above the background value unless:
  - a. The permittee demonstrates by submission of a report to the department within 60 days of notice of exceedence, that the exceedence is the result of an off-site source of contamination or an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality; and
  - b. The department accepts the explanation;
- (3) Assessment monitoring shall be initiated as follows:
  - a. The permittee shall sample the groundwater for all regulated contaminants listed in Env-Wm 1403.05 and any additional parameters which the department may require, within 60 days of notifying the department of the exceedence in the detection monitoring unless the permittee demonstrates that the regulated contaminant is not contained in the waste managed at the facility; and
  - b. The permittee shall sample, at least on a semi-annual basis, the groundwater for all constituents required under the detection monitoring and any additional regulated contaminant discovered in the assessment monitoring;
- (4) The results of the assessment monitoring shall be submitted to the department within 45 days of the sampling date;
- (5) The permittee shall establish background concentrations for all regulated contaminants discovered in the assessment monitoring;
- (6) If the concentration of a regulated contaminant detected by assessment monitoring is above the background value, but the concentration is below the ambient groundwater quality standard established under Env-Wm 1403.05, the permittee shall notify the department within 10 days;
- (7) A corrective action plan which institutes corrective action to prevent the discharge of the regulated contaminant to groundwater, and an implementation schedule, shall be submitted to the department for approval, within 30 days of

notification of exceedence in the assessment monitoring;

- (8) The corrective action plan shall include, but shall not be limited to:
  - a. Inspection and audit of activities and procedures at the facility to determine possible sources of contamination;
  - b. Remediation of the source of the groundwater contamination;
  - c. Further groundwater investigation;
  - d. Modification of facility operation;
  - e. Treatment of the waste stream;
  - f. Groundwater restoration; and
  - g. Facility closure;
- (9) All engineering documents shall be prepared by, and bear the seal of, a professional engineer licensed under RSA 310-A;
- (10) The department shall approve the corrective action plan if the plan demonstrates that the action shall:
  - a. Achieve compliance with ambient groundwater quality standards;
  - b. Eliminate any future discharges of regulated contaminants to the groundwater; and
  - c. Protect human health and the environment;
- (11) The corrective action plan shall be initiated within 30 days of department approval and implemented in accordance with the approved implementation schedule;
- ( 12) The department shall approve the implementation schedule upon determining that the schedule is protective of human health and the environment;
- (13) If sampling and analysis at specific wells indicate concentrations of all regulated contaminants in the assessment monitoring are at or below background values, for two consecutive sampling events, the permittee shall notify the department of this finding and return to detection monitoring at those wells; and
- (14) If the concentrations of any regulated contaminant detected by assessment monitoring are above the ambient groundwater quality standard established under Env-Wm 1403.05, the permittee shall notify the department within 10 days and apply for a groundwater management permit under Env-Wm 1403.12.

Env-Wm 1403.22 Groundwater Release Detection Permit Procedures.

(a) The following information, if applicable to the facility, shall be included in the application for a groundwater release detection permit:

- (1) The facility name, address, property deed reference by county book and page and property tax map and lot number;
- (2) The facility owner's name, mailing address, and telephone number;
- (3) The property owner's name, if different than facility owner, mailing address, and telephone number;
- (4) The facility operator's name, if different than facility owner, mailing address, and telephone number;
- (5) The contact person's name, mailing address, and telephone number;
- (6) A complete description of the facility, its intended capacity, type of wastes or wastewater handled, together with supporting information describing the process involved in the treatment, storage, or disposal of wastes;
- (7) A description of management practices used to prevent potential contamination;
- (8) A description of facility construction including liner type, diversion ditches, and other pertinent construction details;
- (9) For a new facility, an estimate of the construction time and the projected start-up date;
- (10) The Standard Industrial Code (SIC) for industrial facilities;
- (11) An USGS map, 7-1/2 minute series, which clearly identifies the facility location;
- (12) A potential receptors map using a tax map as a base, which identifies and locates, to the extent ascertainable, the following:
  - a. Streets within 1,000 feet of the facility;
  - b. Properties, including tax map and lot, ownership, and land use information, within 1,000 feet of the facility;
  - c. Physical structures, storage areas, and buildings, including information on building use and existence of basements, within 1,000 feet of the facility;
  - d. Surface water bodies within 1,000 feet of the facility; and



- e. Water supply wells, including type of use, within 1,000 feet of the facility;
- (13) A facility plan prepared in accordance with the following:
- a. The plan shall include a title, a legend, and a true north arrow;
  - b. The plan shall be drawn to scale and the scale shall be noted on the plan and include a graphic scale bar;
  - c. The base plan sources from which the facility plan was derived shall be noted on the plan;
  - d. The location, elevation, and datum of a bench mark shall be included, but if a bench mark referenced to NGVD is within 1,000 feet of the facility, the elevation shall be recorded using NGVD and the source of the NGVD bench mark information shall be noted on the plan;
  - e. Ground surface spot elevations and contours to show topography;
  - f. The facility plan shall identify and locate, to the extent ascertainable, the following:
    - 1. Physical structures, storage areas, and buildings associated with facility;
    - 2. Existing and proposed groundwater monitoring wells that will be monitored;
    - 3. Surface water sampling points;
    - 4. Groundwater contours which accurately show groundwater flow direction within 100 feet of the facility;
    - 5. Surface water bodies within 100 feet of the facility;
    - 6. Land surface contours within 100 feet of the facility;
    - 7. Piezometers used to develop groundwater contours;
    - 8. Table of water level measurements and elevations found in piezometers and monitoring wells used to develop the groundwater contours;
    - 9. Soil borings and test pits within 100 feet of the facility;
    - 10. Above and underground storage tanks associated with the facility;

11. Underground utilities at the facility; and

12. Subsurface drains at the facility;

(14) In addition to the facility plan, a copy of the plan scaled to fit onto an 8 ½" x 11" or 11" x 17" sheet and modified to make items listed in Env-Wm 1403.22(a)(13)a, Env-Wm 1403.22(a)(13)b., and Env-Wm 1403.22(a)(13)f.1. through Env-Wm 1403.22(a)(13)f.5. legible;

(15) A table summarizing all monitoring results to date for the last 5 years from existing monitoring points, including initial background values for all parameters listed under Env-Wm 1403.05, unless a longer period is specifically requested by the department;

(16) A list of reports on land use history, activities, water quality, and hydrogeology associated with the property on which the facility is located;

(17) A detailed proposal for a water quality monitoring program, including proposed monitored schedule, parameters to be analyzed, and monitoring locations, with supporting information justifying the locations, frequency, and parameters selected;

(18) Test pit data and boring log data including:

a. Soil sample descriptions according to:

1. Unified Soil Classification System;

2. Burmister Classification System;

3. "Standard Test Method for Classification of Soils for Engineering Purposes," American Society for Testing and Materials, Designation: D2487, approved June 29, 1990, and published August 1990; and readopted 1993; or

4. "Standard Practice for Description and Identification of Soils, Visual Manual Method," American Society for Testing and Materials Designation: D2488, approved June 29, 1990, and published August 1990; and readopted 1993;

b. Drilling methods;

c. "N-values" according to "Penetration Test and Split Barrel Sampling of Soil," American Society for Testing and Materials Designation: D1586, approved October 15, 1992; and

d. Water table observations;

(19) Well construction details of existing monitoring wells, top of well casing elevations, and measured depth to water table from top of casing;

(20) Certification that application has been made for all required state or federal permits;

(21) Certification of notice to the governing body of the municipality in which the facility is located, with notification made by providing a copy of a completed permit application to the town/city clerk of the municipality; and

(22) Signature of the applicant.

(b) A \$1,000 fee as required under RSA 485-C:4, VI shall accompany the permit application. All checks shall be made payable to the "State of New Hampshire - D. E. S."

(c) Within 90 days from the receipt of a complete permit application, the department shall issue a permit for a period of 5 years, subject to renewal if compliance with Env-Wm 1403.21 and Env-Wm 1403.22 has been demonstrated. The department shall notify the applicant of its decision in writing by issuing a permit or denying the application.

(d) The department shall enter any facility that is or should be permitted for the purpose of collecting information, examining records, collecting samples, or undertaking other action associated with the permit.

(e) The permittee shall submit to the department, before facility start-up, an as-built site plan on an 8 1/2" x 11" or 11" x 17" sheet and boring logs and well construction details of wells installed after permit issuance.

(f) The permittee shall submit one complete set of water quality results to the department before facility start-up.

Env-Wm 1403.23 Permit Renewal.

(a) The permittee shall apply for the renewal of the permit 90 days prior to its expiration date.

(b) The permittee, regardless of whether a renewal application is filed, shall continue to comply with all conditions in the original permit until:

(1) The permit is renewed;

(2) The facility is closed in accordance with all applicable requirements; or

(3) A certificate of no further action is issued by the department.

(c) The renewal application shall include an update of all information submitted for the expiring permit with all future modifications included.

Env-Wm 1403.24 Permit Modification.

(a) A permittee may request a permit modification by submitting a written request to the department, including the reasons for the modification and a table summarizing all monitoring results to date from existing monitoring points.

(b) The department shall modify the permit or deny the request, stating the reasons for denial in writing, within 90 days of receipt of the request.

(c) The department shall modify the permit if the applicant can demonstrate compliance with Env-Wm 1403.15 and Env-Wm 1403.21.

(d) The department shall modify a permit without request by the permittee, in accordance with RSA 541-A:30, as follows:

(1) After providing written notice which shall:

- a. Identify the facility by name, identification number, location, and permit number;
- b. Explain the action(s) the department proposes to take and the reasons for the proposed action;
- c. Identify the department's authority for taking such an action;
- d. Explain the opportunity for an adjudicative hearing and related deadlines;
- e. List the name, title, mailing address and telephone number of the department representative who may be contacted regarding the notice; and
- f. Be dated and signed by the director or a person so authorized by the director; and

(2) If the department determines that:

- a. Issuance of the permit was based on false or misleading information;
- b. Modification of the permit is necessary to ensure protection of human health or the environment; or

c. Modification of the permit is necessary to ensure compliance with Env-Ws 1403.15 or 1403.21.

(e) An adjudicative hearing on a permit modification initiated by the department pursuant to (d), above, shall:

(1) Be requested by the permittee to the department in writing within 30 days of receipt of the notice from the department; and

(2) Proceed in accordance with Env-C 202.

[Env-Wm 1403.25 Transfer of Permits.](#)

(a) Prior to a transfer of a site with a release detection permit or groundwater management permit, the permittee shall file a written request with the department for a transfer of the permit to the new owner.

(b) Transfer requests shall include the following information:

(1) The department site number;

(2) The site name;

(3) The site address;

(4) The tax map and lot number;

(5) The name, address, telephone number, and signature of the person to whom the permit transfer is requested;

(6) The name, address, telephone number, and signature of the current permittee; and

(7) A summary of all monitoring results to date.

(b) Within 90 days of receiving a request for transfer, the department shall approve or deny the transfer request and shall notify both parties of its decision in writing.

(c) The department shall deny an application to transfer a permit if:

(1) The facility is not presently in compliance with the permit, these rules or any applicable statutes;

(2) The permittee fails to pay any outstanding penalties or fines issued under RSA

146-A, RSA 146-C and RSA 147-A;

(3) The permittee fails to pay any outstanding invoice associated with the department's recoverable cost pursuant to RSA 146-A, RSA 146-C, RSA 147-A and RSA 147-B; and

(4) The permittee has failed to perform in accordance with a court order, consent decree or other settlement agreement relating to the property subject to the groundwater permit.

(d) Within 30 days from the date of approval of transfer, the new permittee shall notify the department in writing of its acceptance of the permit.

[Env-Wm 1403.26 Water Quality Sampling, Analysis, and Reporting.](#)

(a) Groundwater quality shall be monitored at all facilities or sites receiving permits under these rules to ensure that groundwater quality is in compliance with the terms of the permit and with these rules.

(b) Surface water points and water supply wells shall be monitored to ensure that water quality is in compliance with applicable water quality standards and the terms of the permit.

(c) Sampling points in the groundwater treatment systems specified in the permit shall be monitored to ascertain that design treatment efficiencies are achieved.

(d) At least one hydraulically upgradient groundwater monitoring well shall be installed to monitor ambient groundwater quality.

(e) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices shall be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

(f) The parameters to be monitored shall be determined on a site specific basis depending on the regulated contaminants present in the discharge or contaminated area, or used in the permitted activity.

(g) Frequency and location of water quality monitoring shall be determined on a site specific basis depending on the hydrogeologic characteristics of the site, predicted rates of groundwater flow, and treatment methods employed.

(h) The results of all sampling and analysis, including quality assurance and quality control results, required under a groundwater permit shall be submitted to the department no later than the 45 days after the sampling date specified in the permit.

(i) Analyses shall be performed by a laboratory certified by the USEPA or the department

pursuant to Env-C 300.

- (j) Sampling shall be performed in accordance with:
  - (1) Sampling procedures and protocol described in "Practical Guide for Ground-Water Sampling," document identification number EPA/600/2-85/104, USEPA; and
  - (2) "RCRA Ground-Water Monitoring Enforcement Guidance," document identification number PB87107751, USEPA.

[Env-Wm 1403.27 Groundwater Monitoring Wells.](#)

- (a) Monitoring wells shall be designed, installed, and decommissioned in accordance with the practices described in:
  - (1) "Standard Practices for Design and Installation of Ground Water Monitoring Wells in Aquifers," American Society for Testing and Materials, Designation: D 5092 - 90, approved June 29, 1990, and published October 1990, readopted - 1995; and
  - (2) "Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells," document identification number EPA/600/4-89/034, USEPA, March, 1991.
- (b) Monitoring wells shall be constructed and decommissioned only by licensed New Hampshire water well contractors holding a valid technical drillers license under RSA 482-B.
- (c) Monitoring wells shall be:
  - (1) Developed prior to sampling; and
  - (2) Allowed to equilibrate a minimum of 2 weeks prior to sampling.

[Env-Wm 1403.28 Waivers.](#)

- (a) The rules contained in Env-Wm 1403 are intended to apply to a variety of conditions and circumstances. It is recognized that strict compliance with all rules prescribed herein might not fit every conceivable situation. The legally responsible person or the permittee may request a waiver of specific rules contained in Env-Wm 1403 in accordance with (b) below.
- (b) All requests for waivers shall:
  - (1) Be submitted in writing to the department; and
  - (2) Include the following information:

- a. A description of the facility or site to which the waiver request relates, including name, address, and the department site number;
- b. A specific citation of the rule for which a waiver is being sought;
- c. A full explanation of why a waiver is necessary and demonstration of the hardship caused if the rule is adhered to;
- d. A full explanation of the alternative(s) to the rule(s) for which a waiver is sought, with backup data for support; and
- e. A full explanation of how the alternative(s) shall be consistent with the intent of RSA 485-C and would adequately protect human health and the environment.

(c) The department shall approve a request for a waiver upon finding that the alternatives proposed are at least equivalent to the requirements contained in this rule, are adequate to ensure that the provisions of RSA 485-C are met, and that human health and the environment will be protected.

(d) No waiver shall be granted which, in the judgment of the department, contravenes the intent of any statute or rule.

(e) The department shall issue a written response to a request for a waiver within 60 days of receipt of the request.

Env-Ws 1403.29 Compliance by Political Subdivisions.

(a) The rules in this chapter have been developed and are intended to protect public health and the environment. All entities who engage in the activities regulated under these rules are encouraged to fully comply with the rules. Regardless of any exemption(s) from specific requirements of these rules pursuant to (b), below, all entities that engage in the activities regulated by these rules remain fully responsible for complying with all applicable statutes, such as those which prohibit the discharge of pollutants to groundwater.

(b) No specific requirement in these rules that is new, expanded or modified as compared to any requirement in effect prior to November 28, 1984, shall apply to a political subdivision unless such requirement:

- (1) Is fully funded by the state;
- (2) Is approved for funding by a vote of the local legislative body of the political subdivision;
- (3) Does not necessitate local expenditures in addition to those already required for



compliance with the requirement in effect prior to November 28, 1984; or

- (4) Implements a federal statute or regulation with which the political subdivision would otherwise be required to comply by the federal government.